Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



Reserve 1.96 R31F50

WATER SUPPLY OUTLOOK FOR OREGON





U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

OREGON DEPARTMENT OF WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.

ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

WATER SUPPLY OUTLOOK FOR OREGON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued

JUNE 8, 1977

Issued by

R. M. DAVIS

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

GUY W. NUTT

STATE CONSERVATIONIST SOIL CONSERVATION SERVICE PORTLAND, OREGON

In Cooperation with

OREGON

DEPARTMENT

OF

WATER RESOURCES

Report prepared by

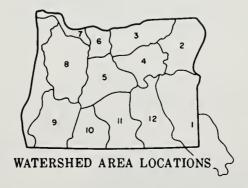
TOMMY A. GEORGE, Snow Survey Supervisor RONALD A. JONES, Asst. Snow Survey Supervisor KATHLEEN D. REDDING, Statistical Assistant

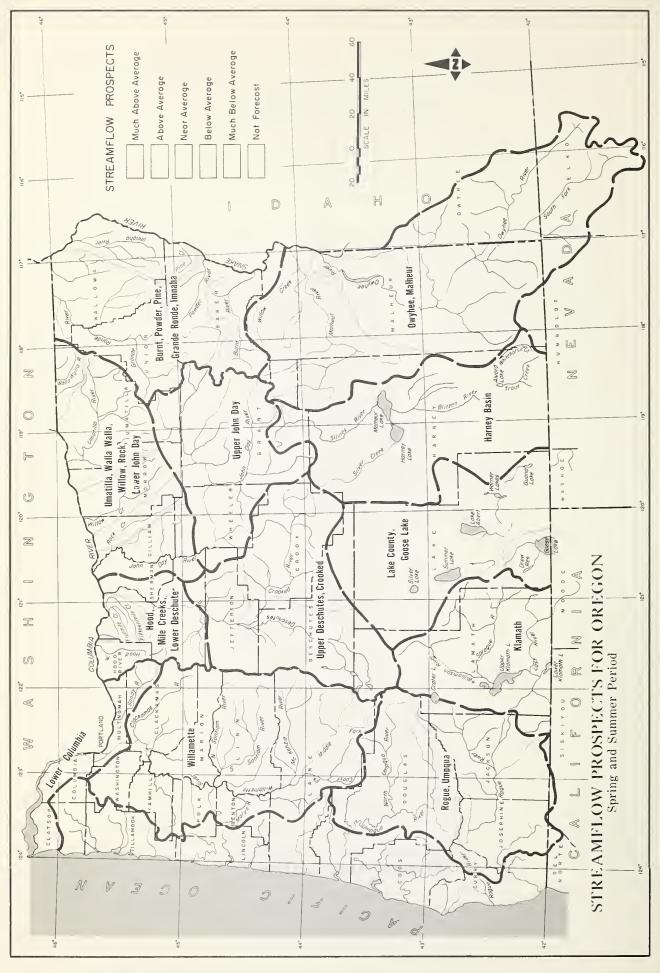
> SOIL CONSERVATION SERVICE 1220 S.W. THIRD AVENUE PORTLAND, OREGON 97204



TABLE OF CONTENTS

PAGE
STREAMFLOW PROSPECTS FOR OREGON
WATER SUPPLY OUTLOOK FOR OREGON
STREAMFLOW FORECASTS
RESERVOIR STORAGE
BASIC DATA SUPPLEMENTS
I — Snow
II — SOIL MOISTURE
III - PRECIPITATION
IV — AUTOMATIC STATION DATA
PREVIOUSLY UNPUBLISHED AND ERRATA SNOW DATA
SNOW SURVEYS AT RADIO TELEMETRY SITES FOR CALIBRATION PURPOSESAPPENDIX
IMPORTANT NOTICE - MAILING LIST REVISION
LIST OF COOPERATORSINSIDE BACK COVER





WATER SUPPLY OUTLOOK for OREGON

JUNE 1, 1977

Above average precipitation in May has helped to alleviate the water shortage in most of western Oregon. Central and eastern Oregon are still under the influence of the drought conditions and will be short in their water supplies.

SNOW COVER

The only extensive snow cover left in Oregon is in the high Cascades and even here most scheduled snow courses reported no snow. Eastern Oregon snow courses were not scheduled for measurement - snow in this area is essentially melted.

PRECIPITATION

May precipitation was above average, ranging from 148% of average in the Burnt-Grande Ronde Rivers area to 225% of average in the Upper Deschutes River area. This precipitation helped to relieve the water limitations in western Oregon, especially in the Willamette Basin.

RESERVOIR STORAGE

Most western Oregon reservoirs report near to above average storage. Storage has increased significantly over that reported on May 1. Storage in central and eastern Oregon reservoirs ranges from good to well below average.

STREAMFLOW

May streamflow in western Oregon was greater than that reported in April. This was a reflection of the above normal precipitation. However, May streamflow in eastern Oregon generally continued to decline.

This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators.



STREAMFLOW FORECASTS		THIS YEAR		PAST RECORD		
BASIN, STREAM and/or FORECAST POINT	FORE Thousand	Percent of	FORECAST	THOUSAND A	Average +	
	Acre Feet	Average	PERIOD	Cast real	Average	
	LHEUR WATER		Marria Justin		20	
Malheur near Drewsey Malheur, North Fork at Beulah	5.5 6.0 7.0	17 18 20	May-July May-Sept. May-July		32 33 35	
Owyhee Reservoir net Inflow	7.5 35 36	19 22 20	May-Sept. May-July May-Sept.		40 157 180	
BURNT, POWDER, PINE, GR					100	
Bear near Wallowa Burnt near Hereford	30 2.5	52 18	May-Sept. May-July		58 13.8	
Catherine near union Eagle Creek abv. Skull Creek	3.0 25 38 42	20 47 25	May-Sept. May-Sept. May-July		14.8 53 152	
Grande Ronde at La Grande	35 37	25 38 38	May-Sept. May-July May-Sept.		166 92 96	
Hurricane near Joseph Imnaha at Imnaha Lostine near Lostine Powder near Sumpter	28 101 64 8.0	64 40 55 20	May-Sept. May-Sept. May-Sept. May-July		44 253 117 40	
Wallowa, East Fork near Joseph	8.5 4.5 5.0	21 53 47	May-Sept. May-July		41 8.5	
Wallowa near Joseph Wolf Creek Dam Inflow	31 0.7	44	May-Sept. May-July May-June		10.7 70 7.6	
UMATILLA, WALLA WALLA, WILLO	l W, ROCK, LO	 WER JOHN D	AY WATERSHEDS			
Birch Creek at Rieth McKay near Pilot Rock Umatilla near Gibbon Umatilla at Pendleton Walla Walla, South Fork near Milton Butter Creek Near Pine City	3.9 5.3 15.0 18.0 25 30 0.5	55 60 38 40 37 59	May-July May-Sept. May-July May-Sept. May-July May-Sept. May-July		7.1 8.8 39 45 68 51 3.4	
HDDED 10HB	 DAY WATERS	HEDE				
Camas Creek near Ukiah	5.0	31	May-July		16.2	
John Day, Middle Fork at Ritter	5.5	33 33	May-Sept. May-July		16.7 67	
John Day, North Fork at Monument	23 110	33 32	May-Sept. May-July		70 340	
Strawberry near Prairie City	115 4.0 4.5	32 62 63	May-Sept. May-July May-Sept.		354 6.5 7.2	
UPPER DESCHUTES	CROOKED W	ATERSHEDS				
Beaver Creek near Paulina	1.0	23 26	May-July		4.4	
Crane Prairie Reservoir total Inflow	20	31 28	May-Sept. May-July May-Sept.		4.6 64 105	
Crescent at Crescent Lake	7.0 8.0	45 41	May-July May-Sept.		15.6 19.6	
Crooked near Post Deschutes at Benham Falls	6.0 191 320	19 68 68	May-July May-July May-Sept.		32 281 471	
Deschutes below Snow Creek Deschutes, Little near La Pine	10.8 10.0	19 19	May-Sept. May-July		56 53	
Ochoco Reservoir net Inflow Odell near Crescent Squaw near Sisters Tumalo near Bend	15.0 2.0 13.0 30 25	24 22 57 65 64	May-Sept. May-Sept. May-Sept. May-Sept. May-Sept.		63 9.2 23 46 39	

STREAMFLOW FORECASTS		THIS YEAR	PAST RECORD		
		CAST	FORECAST	THOUSAND A	
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	Last Year	Average +
HOOD, MILE CREEK	S LOWED DES	CHITES MAT	EDCHEDC		
Hood, West Fork near Dee	50	59	May-July		35
White below Tygh Valley	70 40 48	65 51 51	May-Sept. May-July May-Sept.		107 79 94
LOWER CO	 LUMBIA WATER	 SHEDS			
Columbia at The Dalles Sandy River near Marmot	54,500 120 155	52 53 55	April-Sept. May-July May-Sept.		227 282
WILL		I SHEDS			
Clackamas at Estacada	242 340	54 60	May-July May-Sept.		447 562
Clackamas above Three Lynx	240 330	70 75	May-July May-Sept.		343 440
McKenzie at McKenzie Bridge	200 310	61 65	May-July May-Sept.		329 474
McKenzie near Vida	420 600	58 63	May-July May-Sept.		720 947
McKenzie, So. Fork near Rainbow	100	71 74	May-July May-Sept.		140 169
Oak Grove Fork above Power Intake	70	79 82	May-July May-Sept.		89 128
Row near Dorena	40 45	75 78	May-July May-Sept.		53 58
Santiam, North at Mehama	350 470	71 71 78	May-July May-Sept.		493 600
Santiam, South at Waterloo	220 290	68 76	May-July May-Sept.		323 382
Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	350 425	76 76 76	May-July May-Sept.		462 562
Willamette, No. Fk. of Mid. Fk. near Oakridge	90	74 78	May-July		121
Willamette at Salem	1,800	69 69	May-Sept. May-July May-Sept.		2,619 3,615
ROGUE, U	 MPQUA WATERS	 HEDS			
Applegate near Copper	40 45	49 52	May-July		81 87
Clearwater above Trap Creek Fourmile Lake net Inflow	45	79 67	May-Sept.		57 3.0
Hyatt Reservoir net Inflow	2.0	58	May-July May-July		2.2
Illinois River near Kerby	45 50	49 52	May-July May-Sept.		97
Little Butte, N. Fk. at Fish Lake nr. Lake Cr. Little Butte, S. Fk. near Lake Creek	10.0	60 62	May-Sept. May-July		11.6
Rogue above Prospect	12.0 110	65 60	May-Sept. May-July		18.4 184
Rogue, South Fork near Prospect	140 30	59 65	May-Sept. May-July		239 46
Rogue at Raygold near Central Point	37 250	66 51	May-Sept. May-July		56 493
Rogue at Grants Pass Umpqua, No. blw. Lemolo Res. nr. Toketee Falls	340 350 95	52 56 68	May-Sept. May-Sept. May-Sept.		648 627 139
KLAMF	 TH_WATERSHED	5			
Clear Lake Reservoir Inflow Gerber Reservoir Inflow	5.0	33 21	May-Sept.		15.1 4.8
Sprague near Chiloquin	1.0	30	May-Sept. May-Sept.	355	166 353
Upper Klamath Lake net Inflow Williamson below Sprague River	135 115	38 40	May-Sept. May-Sept.	333	287

+ 1958-1972 period.

STREAMFLOW FORECASTS		THIS YEAR			RECORD
BASIN, STREAM and 'or FORECAST POINT	Thousand Acre Feer	Percent of Average	FORECAST PERIOD	THOUSAND A	Average +
LAKE COUNTY,	1				
Chewaucan near Paisley	5.3 6.0	9 10	May-July May-Sept.		56 60
Deep above Adel	8.0	19 18	May-July May-Sept.		43 45
Drews Reservoir net Inflow Honey Creek near Plush	1.0	10 13 13	May-July May-July May-Sept.		9.7 11.3 11.4
Silver Creek near Silver Lake Twentymile near Adel	1.1	10 16	May-July May-Sept.		10.7
HARNEY	 BASIN WATER:	 SHEDS			
Donner und Blitzen near Frenchglen	16.0 19.0	43 45	May-July May-Sept.		37 42
Silver near Riley Silvies River near Burns	0.5 4.5 4.8	10 14 14	May-July May-July May-Sept.		5.1 33 35
Trout Creek near Denio	0.7	12 15	May-July May-Sept.		5.8 6.2
				5	
(a) Estimated. (b) 1958-72 adjusted average. (c) 1958-72	, 15 year avera	ge. (d) Corre	cted to natural flo	w. (e) Not sche	duled.

B F C F B \ (O B	Usable	U	sable Stora	ge	BESTERVOIR	Usable		Jsable Stora	age
RESERVOIR	Capacity	This Year	Last Year	Average †	RESERVOIR	Capacity	This Year	<u>Last</u> Year	Average
OWYHEE,	MALHEUR	I WATERSHE	DS		ROGUE,	UMPQUA W	I ATERSHED	I)S	
Antelope Beulah Reservoir	70.0	No repo	rt 40.9	46.7 49.0	Emigrant Lake Fish Lake	39.0 8.0	31.3 6.9	35.0 8.0	35.2* 6.5
Bully Creek	30.0	10.6	21.5	21.4	Fourmile Lake	16.1	11.8	14.7	11.9
Owyhee Warmsprings	715.0	429.8 54.0	695.9 165.9	549.9 136.2	Howard Prairie Hyatt Prairie	60.0 16.1	33.9	60.6 15.6	48.6
BURNT, POWD	 ER, PINE, NAHA WATE		RONDE,		* Average for years of record (in base				
Phillips Lake	73.5	38.3	67.8		period) after reconstruction.				
Thief Valley Unity	17.4 25.2	14.0	17.4 24.0	16.7 22.8					
Wallowa Lake Wolf Creek	37.5	34.7 7.6	30.2	30.2	KLAM	 ATH WATER	SHEDS		
	10.1	7.0			Clear Lake	440.2	192.6	279.7	258.0
UMATILLA, WA LOWER S	ALLA WALL JOHN DAY				Gerber Upper Klamath Lake	94.0 584.0	28.9 476.2	65.1 471.1	63.8 534.7
Cold Springs McKay	50.0 73.8	26.5 31.0	48.6	47.8 60.7					
rickay	/3.0	31.0	07.9	00.7	LAKE COUNTY,	1	t	1	
LIDDED DESCHI	ITES CDO	NED HAT	EDCHEDO		Cottonwood Drews	8.7 63.0	1.8	5.0 52.3	7.0* 53.1
UPPER DESCHU Crane Prairie	55.3	29.0	54.9	38.0	Thompson Valley	19.5	7.5		
Crescent Lake Ochoco	86.9 47.5	64.7 21.4	90.7	54.3 35.9	* Average for years of record (in base				
Prineville	153.0	102.2	146.6	146.0	period) after				
Wickiup	200.0	177.6	169.3	165.9	reconstruction.				
HOOD, MILE (CREEKS, L WATERSHE		CHUTES						
Clear Lake (Wasco)	11.9	4.3	12.5	5.8					
WILLA	 METTE WA	TERSHEDS							
Blue River Cottage Grove	85.6*	79.7 29.0	80.7 26.4	27.3					
Cougar Detroit	155.2*	145.9	143.8	141.2					
Dorena	299.9*	287.9 66.8	267.8	281.1					
Fall Creek Fern Ridge	115.0*	109.3	107.3 95.8	108.1 89.5					
Foster Green Peter	30.0*	25.0 253.8	24.9 245.6	24.6 250.9					
Hills Creek	200.0*	127.4	187.8	185.6					
Lookout Point Timothy Lake	337.2*	246.9 26.9	323.5 64.4	306.3					
Henry Hagg Lake	53.0	34.7	53.6						
Multiple purpose reservoirspace reserved primarily for flood runoff.									
() 7					year average. (d) Corrected to	1.0	() N	1	

NOW	ТНІ	S YE	/AR	PAST	REC	SHOW	TI	IS YE	AR	PAST	REC
RAINAGE BASIN and for SNOW COURSE	of C	Snow Depth	Water Cont	(inc		DRAINAGE BASIN and/or SNOW COURSE		Snow Depth		Water C	es)
	Survey	(In.)	(In.)	Last Yr.	Avet		Survey	(ln.)	(ln.)	Last Yr.	Ave.
Annie Spring Billie Creek Divide Billie Creek Divide Pillow Cascade Summit Clear Lake Clear Lake Experimental Cold Springs Camp Derr Diamond-Crater Summit Rev. Diamond Lake Diamond Lake Diamond Lake Junction Fourmile Lake Fourmile Lake Pillow Hogg Pass Hungry Flat Laurel Mountain Marion Forks Marks Creek Mud Ridge Mud Ridge Pillow New Dutchman Flat #2 Park Headquarters Quartz Mountain Railroad Overpass Salt Creek Falls Santiam Junction Still Creek Tangent Valsetz Summit Whitewater Bridge	5/28 5/31 5/27 5/27 5/26	19 0 0 0 0 2 	0.0 0.0 0.0 0.1 2.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0	10.7 0.0 0.0 18.0 19.1 8.8 0.0 0.0 27.0 0.0 13.0 48.6 25.4 0.0 0.0 0.0 11.4 0.0	0.0 -7.5 0.1 0.5 13.5 -14.1 3.2 0.0 -22.7 0.0 40.0 0.0 0.0 1.1 0.3 4.6						
		:									
						"					
(a) Estimated. (b) 1958-72 adj	justeda	verag	ge. (d	l :) 1958-	72, 15	ear average. (d) Corrected to natural f	low.	1 (e) No	t sche	duled.	

SOIL MOISTURE

Name Bear Creek (Nev.) Big Bend (Nev.) Blue Mountain Spring Mud Flat (Ida.)	OWYHEE, MA 7800 6700	Depth ALHEUR WAT 72	1	Survey	This Year	Last Year	Average
Big Bend (Nev.) Blue Mountain Spring	7800	1	1				
Big Bend (Nev.) Blue Mountain Spring	7800	1	1				
Big Bend (Nev.) Blue Mountain Spring	7800	1	1				
Big Bend (Nev.) Blue Mountain Spring		72					
Blue Mountain Śpring	D/1111	48	16.8		e		
	5900	42	16.7 16.9	6/1	10.1	12.1	12.8
	5500	48	12.8	-, .	e		
Rodeo Flat (Nev.)	6800	42	11.0		e		
aylor Canyon (Nev.)	6200	48	15.1		e		
	BURNT, POWDER, PINE, G	RANDE RONI	DE, IMNAHA	WATERSHED:	5		
Blue Mountain Summit	5100	36	16.8	6.40	e		15.2
Dooley Mountain Emigrant Springs	5430 3925	36 48	9.2	6/2	2.8 e		5.7
_aad Summit	3730	48	18.9	6/2	9.9		12.1
Moss Springs	5850	36	25.8		e		16.6
[0] lgate	5070	48	23.6		e		19.4
UMAT	TILLA, WALLA WALLA, WILL	l .OW, ROCK	 LOWER JOHN	 DAY WATER	SHEDS		
Battle Mountain Summit	4340	48	13.8	5/31	10.8		12.6
migrant Springs	3925	48	22.3		e		20.7
[ollgate	5070	48	23.6		e		19.4
	UPPER JOH	N DAY WATI	I ERSHEDS				
Battle Mountain Summit	4340	48	13.8	5/31	10.8		12.6
Blue Mountain Spring	5900	42	16.9	6/1	10.1	12.1	12.8
Blue Mountain Summit Derr	5100 5670	36 24	16.8 9.0	5/31	9.0	8.6	15.2 8.5
Marks Creek	4540	36	14.1	5/27	12.1		13.2
Snow Mountain	6300	48	16.7	No re			15.7
Starr Ridge	5150	36	10.6	6/1	10.6	10.5	103
	UPPER DESCHUTE	S, CROOKE	 D WATERSHE	DS :			
Derr	5670	24	9.0	5/31	9.0	8.6	8.5
Marks Creek	4540	36	14.1	5/27	12.1		13.2
Snow Mountain	6300	48	16.7	No re	port		15.7
	KLAMAT	I H WATERSH	EDS				
Quartz Mountain	5230	48	15.3	5/27	14.6	9.0	9.7
	LAKE COUNTY, G	OOSE LAKE	WATERSHED	S			
Camas Creek	5720	42	14.5	6/3	10.6		12.6
Quartz Mountain	5230	48	15.3	5/27	14.6	9.0	9.7
	HARNEY B	I ASIN WATE	RSHEDS				
Blue Mountain Spring	5900	42	16.9	6/1	10.1	12.1	12.8
Silvies	6900	48	16.4	No. 100	e		15.7
Snow Mountain Starr Ridge	6300 5150	48 36	16.7 10.6	No r∈ 6/1	10.6	10.5	10.3
Journ Midge	5000	24	6.6	5/31	5.8		5.6

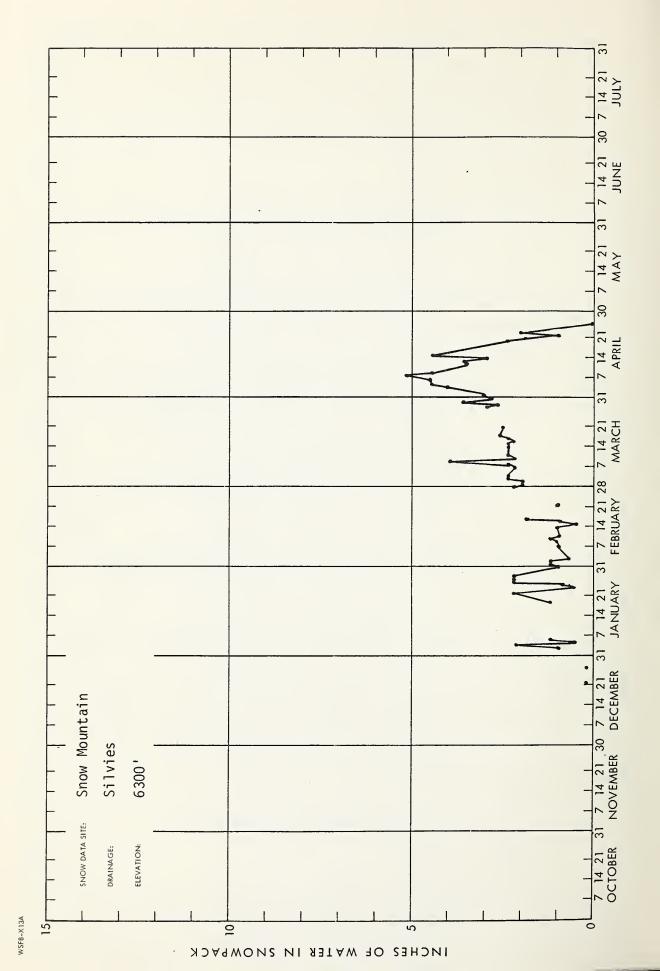
WSF8-X13D

WSFB-X13A

X

INCHES OF WATER IN SNOWPACK

INCHES OF WATER IN SNOWPACK



ERRATA: 1977 RESERVOIR STORAGE MEASUREMENTS PUBLISHED IN ERROR

RESERVOIR NAME	REPORT	US ABLE STORAGE
Greenpoint Reservoir Previously Published Correct Data	February February	. 35.0 No Report
Thief Valley Reservoir Previously Published Correct Data	February February	15.0 16.1
Thompson Valley Reservoir Previously Published Correct Data	March March	22.5 9.0

